

1 E. ROBERT WRIGHT
1418 20th Street, Suite 100
2 Sacramento, CA 95811
(916) 442-3155 x207
3 bwright@friendsoftheriver.org

4 KYLE JONES
5 909 12th Street, Suite 202
6 Sacramento, CA 95814
(916) 557-1107
7 Kyle.Jones@sierraclub.org

8 Attorneys for protestants
9 FRIENDS OF THE RIVER
10 SIERRA CLUB CALIFORNIA

11
12 **BEFORE THE**
13 **CALIFORNIA STATE WATER RESOURCES CONTROL BOARD**

14 HEARING IN THE MATTER OF
15 CALIFORNIA DEPARTMENT OF
16 WATER RESOURCES AND UNITED
17 STATES BUREAU OF RECLAMATION
18 REQUEST FOR A CHANGE IN POINT
19 OF DIVERSION FOR CALIFORNIA
20 WATER FIX

TESTIMONY OF
DR. LAWRENCE P. KOLB

1 I, Dr. Lawrence P. Kolb (Larry Kolb), do hereby declare:

2 **I. INTRODUCTION**

3 I am Lawrence Kolb, residing at 6225 Manoa Street in Oakland, California. I am a registered civil
4 engineer, and hold bachelors, masters, and doctoral degrees in civil engineering from, respectively,
5 Michigan State University, University of California at Berkeley, and Utah State University. In my
6 doctoral program I took coursework beyond engineering in environmental toxicology, fisheries biology
7 and water law.

8 I have spent most of my working life on water quality issues, including 33 years on the staff of
9 the San Francisco Bay Regional Water Quality Control Board in Oakland. For many years my
10 responsibilities included regulation of waste discharges to San Francisco Bay and its tributaries from
11 municipal and industrial dischargers and from nonpoint sources. I was responsible for the day to day
12 supervision of about 80 Board staff concerned with surface water issues, made up of civil and chemical
13 engineers, biologists, and engineering geologists.

14 As part of my duties I was chair of the San Francisco Estuary Project Implementation
15 Committee, and was chair of one of the biennial conferences on the State of the Estuary.
16 In 2006 I retired as Principal Engineer and Assistant Executive Officer. Since my retirement, I have
17 become a student of California's system for water supply and water rights and the water quality and
18 biological consequences of past and pending decisions in those areas. My Statement of Qualifications is
19 provided as Exhibit FOR-3.

20
21 **II. SUMMARY OF TESTIMONY**

22 Measurable numerical limits are the most effective and workable means of regulating water for
23 environmental protection, and are superior to more subjective approaches such as adaptive management.

24 The twin tunnels would magnify the effects of pollutants in the Delta and Bay at a time when that
25 system is under great stress.

26 Water Quality Certification Under Section 401 of the Clean Water would be wrong because the
27 project would increase violations of existing standards, and harm the Delta and Bay by reducing even
28 further the outflow that dilutes and flushes pollutants from the system.

1 The State Water Resources Control Board should not abdicate to another agency its responsibility
2 for setting standards for Delta outflow. It was created to make difficult decisions like those before it
3 now.

4 **III. WATER QUALITY REGULATION NEEDS NUMBERS**

5 I began my employment with the Regional Board in 1973, at a time of great public and political
6 interest in protection of water quality. There were two approaches legislated. California's Porter-
7 Cologne Act, passed in 1969, called for the State Water Resources Board to designate beneficial uses of
8 water bodies, and authorized it to promulgate the water quality needed to protect those uses, and to
9 specify limits on pollutant discharges as needed to assure that water quality. This 'soft' approach was
10 logical in theory, but I believe it would have been difficult to implement in practice. Instead we would
11 get dueling experts.

12 Three years later, in 1972, the US Congress passed the federal law now called the Clean Water
13 Act. This was done over a presidential veto and in the face of fierce opposition, especially from industry.
14 The CWA essentially required secondary biological treatment for sewage treatment plants, and an
15 equivalent level of treatment for major categories of industry. The CWA law required USEPA to
16 develop enforceable numerical effluent limits for various categories of waste dischargers, administered
17 through the NPDES permit program, so that there would be no question as to when a violation of an
18 effluent limit occurred.

19 In those early years of the CWA, I prepared NPDES permits for Regional Board adoption and
20 supervised and reviewed the work of others writing permits for Board action. Later I was involved in
21 enforcement actions for violation of those permits.

22 In my experience, the Clean Water Act, as administered by the State and Regional Boards was a
23 success, although this did not come easily. Most early permits were hotly contested, and many were
24 appealed to the State Board and even the courts. There were several cases where the Regional Board's
25 only recourse for violations by municipal discharges was to prohibit new connections (a de facto
26 building ban) until progress was made.

27 The required upgrades in municipal and industrial treatment facilities had a capital cost of
28 several billion dollars even in 1970s dollars. Much of this huge investment in clean water will rightly be

1 regarded as wasted if the fish and biological community the facilities are intended to protect is written
2 off as not worth saving.

3 As the new treatment works came on line, there was a dramatic reduction in pollutant discharges.
4 All of the municipal and industrial waste dischargers did achieve compliance, and the Bay and Delta
5 were better for it. From this experience I conclude that numerical standards offer a workable basis for
6 protecting the environment, even in the face of determined opposition by the regulated community.

7 I understand that the State Board is considering using 'adaptive management', with narrative
8 objectives only for defining acceptable in-Delta flows. I believe this would fly in the face of everything
9 we know about regulating recalcitrant parties. Given the history described above I see this as a step
10 backwards and a recipe for endless delay.

11 12 **IV. THE TUNNELS WOULD MAGNIFY POLLUTANT IMPACTS**

13 Despite major improvements in wastewater treatment as noted above, in recent years there have
14 been unprecedented, catastrophic declines of organisms in both the Delta and Bay. Bay species affected
15 include the Longfin Smelt, the Starry Flounder, and the Bay Shrimp. Studies of the Pelagic Organism
16 Decline by the Interagency Ecological Program (Exhibit FOR-60, pp. 90-97) note that aquatic organisms
17 in the Delta are exposed to many stressors, all at the same time. These include reductions in Delta
18 outflow (p. 91), and changes in many other factors: salinity, the surrounding landscape (p. 92),
19 temperature, turbidity (p.93), nutrients (p.94), contaminants and harvest, including invasive clams
20 (p.95). The researchers could not identify any one of these as being the dominant variable, but first on
21 their list was flow.

22 One of the stressors is contaminants (pollutants). The waters of the Delta and Bay are affected by
23 pollutants not removed in the wastewater plants, not all of which are identifiable, and pollutants from
24 urban runoff, and farmland and other non-point sources. Comments on the WaterFix Partially
25 Recirculated Draft EIR/ Supplemental Draft EIS by Friends of the River, the Sierra Club, and other
26 environmental groups in 2015 noted that effects analysis predicted increased concentrations of many
27 contaminants of concern, stating,
28

1 [Waterfix] RDEIR/SDEIS modeling results reveal that the project will degrade water quality for
2 boron, bromide, chloride, electrical conductivity, dissolved organic carbon, nitrate, mercury,
3 pesticides, and selenium.” (Exhibit FOR-61, p. 62.)

4 The degradation analysis by the environmental groups included supporting data from the
5 RDEIR/SDEIS on the following pages: boron (p. 63), bromide (p. 63-65), chloride and EC (p. 65-68),
6 pesticides (p. 68), nitrates (p. 69), methyl mercury (p. 70-71), selenium (p. 72-75.) (Exhibit FOR-61.)

7 Other pollutants include ammonia, which can inhibit nitrogen uptake by plankton, mercury,
8 pesticide residues, and so-called contaminants of emerging concern. The latter include pharmaceuticals
9 and personal care products not removed in sewage treatment, and even pollutants deposited from the air,
10 like low levels of dioxins.

11 The flow of water to the Delta and thence the Bay interacts with pollutants in two ways. One is
12 dilution; more flow means more dilution, lower pollutant concentration, and therefore less adverse
13 impact on the biota. A second function of flow is pollutant transport, or flushing, moving pollutants
14 downstream and ultimately to the ocean. Flow is our ultimate defense against pollutants we cannot
15 control, diluting them and speeding their way to the vast expanses of the ocean. Flow is also needed to
16 move juvenile forms of many organisms downstream as part of their normal life cycle.

17 Lessening freshwater outflow, which the twin tunnels would allow, would increase both
18 pollutant concentration with less dilution, and duration of pollutants in a given area (also called
19 residence time). These two factors acting together can allow pollutant impact to soar. I believe that the
20 twin tunnels project would worsen the already-bad conditions for aquatic species in the Delta and the
21 Bay.

22 Another impact of the tunnels project concerns selenium. By diverting more water out of the
23 Delta, more will be available for agriculture on the west side of the San Joaquin Valley, irrigating soils
24 with naturally occurring toxic selenium. Irrigating these soils has converted some of that selenium from
25 the relatively inert selenate form to far more toxic selenite and organic forms. This one-way process has
26 created a potential time bomb of toxic water beneath the surface of west side cropland. Retiring these
27 lands from irrigated agriculture is the only workable solution. Further irrigating them with water taken
28 from the Delta is to do harm twice.

1 **V. The State Water Board Should Decide**

2 The legislature created the State Water Resources Control Board (Water Board) to resolve some
3 of the most complex and contentious issues in the state: water rights and water quality. State Board
4 members are subject to senate confirmation, conflict of interest restrictions, serve for fixed four-year
5 terms with staggered expiration dates, and make their decisions in recorded public votes. This system
6 was intended to enable the State Board to have expertise, independence, continuity and transparency.

7 State agencies under direct control of the executive, such as the Department of Fish and Wildlife
8 do not have this independence. In my 33 years on the staff of the San Francisco Bay Regional Board I
9 came to a high opinion of the people I worked with at what was then called the Department of Fish and
10 Game (now Department of Fish and Wildlife, or DFW). I saw personal integrity and professional
11 competence.

12 But I also saw how difficult life could be for DFW staff. They did not and do not have the
13 protections against political pressure that the State and Regional Water Board have. The DFW continues
14 to be given regulatory responsibilities but without protections against political pressures. I have
15 personally witnessed CDF professional staff steamrolled on water issues by special interests acting
16 through the governor's office.

17 Difficult decisions like the one for Delta flows is exactly why the State Board exists, and why it
18 has special protections against undue political influence. In my years with the Regional Water Board I
19 saw the State Board adopt a great many standards, policies, and resolutions. I do not recall the State
20 Board ever handing this responsibility to another agency. For the State Board to abdicate this central
21 responsibility is a perversion of California's system of water regulation. It is the responsibility of the
22 State Board, and no one else, to adopt Delta standards in the light of the Public Trust Doctrine, Water
23 Quality Objectives (to be updated as promised early and not done), and the Antidegradation Policy. The
24 State Board should do its job.

Executed on this 28th day of November, 2017, in Oakland, California.

A handwritten signature in cursive script that reads "Lawrence P. Kolb". The signature is written in black ink and is positioned above a horizontal line.

Lawrence P. Kolb

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28